

Method and System for Minimizing Network Bandwidth Bottlenecks

## ABSTRACT

5 A method and system for reducing network traffic in a data processing network are disclosed. The data processing system typically includes a user station, a boot server from which portions of the user station operating system are retrieved, and an application server from which portions of a user application program are retrieved. In one embodiment, a user station of the data processing system includes a non-volatile storage device. Portions of the operating system and application that are frequently accessed may be downloaded from the appropriate servers  
10 and stored in the non-volatile storage device. In one embodiment, the user station may determine which code segments constitute key code segments by recording page fault in a miss table of the user station. The most frequently accessed pages can then be determined for storing in local memory. To maintain consistency of software when the operating system or an application program is revised or updated, one embodiment of the invention clears the key code segments from all local non-volatile storage devices when an operating system or application program is newly installed on one of the servers. In another embodiment, network traffic is reduced by installing a program on the user station and the data server that monitor changes to a data file. When an application is invoked by the user station and the user begins to modify data,  
15 the user station program records the changes that are made to the data file locally in a local change file. Periodically the local change file is transferred to the data server, where the local changes are incorporated into a master change file on the data server. When the user ultimately exits the program or saves the data, the server program reads the master change file and implements the changes to the data file.  
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